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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,277	08/24/2001	Paul Jeffrey Garnett	5681-02700	2593

7590 12/19/2003

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EXAMINER

KIM, HONG CHONG

ART UNIT	PAPER NUMBER
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2186

DATE MAILED: 12/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/939,277

Applicant(s)

GARNETT ET AL.

Examiner

Hong C Kim

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Detailed Action

1. Claims 1-21 are presented for examination. This office action is in response to the application filed on 8/24/01.

Priority

6. Receipt is acknowledged of papers submitted on 8/24/01, under 35 U.S.C. § 119, which papers have been placed of record in the file.

2. Receipts are acknowledged of information disclosure statement filed on 12/07/01 which the statement has been placed of record in the file. Information disclosed and listed on PTO 1449 was considered.

Specification

3. Applicants are requested to include the status of the related U.S. applications, patents, and foreign application in the CROSS-REFERENCE TO RELATED APPLICATIONS section and in any other corresponding area in the specification.

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The title should be more specific to differentiate the invention from similar inventions in the patent literature. The "processing sets",

“a bridge”, “dirty indicator”, “DMA”, “and “copy” aspects of the invention should be mentioned in the title so that the title is more descriptive.

Drawings

5. The drawings are objected to because:

Applicant is asked to provide descriptive labels for the black boxes in Fig. 11, Fig. 11A, Fig. 13 Ref. 251, Fig. 14, Fig. 15, Fig. 16 and Fig. 17 to facilitate the general understanding of the present invention.

6. Applicants are reminded to maintain clear demarcation to avoid possible double patenting between US application No. 09/938,800, 09/938,808, 09/939,078, 09/939,277 and the current application. Applicants are reminded to maintain a clear line of demarcation between this application and the pending applications to avoid possible double patenting.

Double-Patenting

7. The non-statutory double patenting rejection, whether of the obviousness-type or non-obviousness-type, is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent. *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Van Ornum*, 686 F.2d 937,

214 USPQ 761 (CCPA 1982); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); and *In re Goodman*, 29 USPQ2d 2010 (Fed. Cir. 1993).

A timely filed terminal disclaimer in compliance with 37 CAR 1.321(b) and (c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CAR 1.78(d).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CAR 3.73(b).

8. Claims 1-21 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of Garnett et al. (Garnett) U.S. Patent No. 6,260,159. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present application is obvious in view of the U.S. Patent No. 6,260,159. The patent claims the same elements plus additional elements not claimed in the present application (a first processor bus, a second processor bus, and a device bus). The omission of these elements and their functions from the patent claims would have been obvious if the functions or the elements are not desired (see MPEP § 2144.04(II)A).

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-21 are rejected under 35 U.S.C. 102(a) as being anticipated by Rowlinson et al. (Rowlinson) WO 99/66402 or 35 U.S.C. 102(b) as being anticipated by Garnet U.S. Patent No. 5,991,900.

As to claim 1, Rowlinson discloses the invention as claimed. Rowlinson discloses a computer system comprising at least two processing sets (Fig. 1), each of which includes main memory (Fig. 4), and a bridge (Fig. 1 Ref. 12) connecting the processing sets, wherein at least a first processing set further including a dirty memory (abstract) having dirty indicators for indicating dirtied blocks of the main memory of the first processing set (abstract), and the bridge includes a direct memory access controller that is operable to copy blocks of the first processing set indicated in the dirty memory to the main memory of another processing set (abstract).

Alternatively, Garnet discloses a computer system comprising at least two processing sets (Fig. 1), each of which includes main memory (Fig. 4), and a bridge (Fig. 1 Ref. 12) connecting

the processing sets, wherein at least a first processing set further including a dirty memory (col. 22 lines 35-48) having dirty indicators for indicating dirtied blocks of the main memory of the first processing set, and the bridge includes a direct memory access controller that is operable to copy blocks of the first processing set indicated in the dirty memory to the main memory of another processing set (col. 23 lines 17-29).

As to claim 12, the claim 12 encompasses the same scope of the invention as that of the claim 1. Therefore, the claim 12 is rejected for the same reason as the claim 1.

As to claims 2 and 13, Garnet discloses the invention as claimed in the above. Garnet further discloses wherein the direct memory access controller is operable to search the dirty memory for dirty indicators indicative of dirtied blocks (col. 22 line 18 thru col. 23 line 29).

As to claims 3 and 14, Garnet discloses the invention as claimed in the above. Garnet further discloses wherein the dirty memory comprises control logic operable to search the dirty memory for dirty indicators indicative of dirtied blocks (col. 22 line 18 thru col. 23 line 29).

As to claims 4 and 15, Garnet discloses the invention as claimed in the above. Garnet further discloses wherein the control logic is operable to output references to the dirtied blocks of the main memory to be copied (col. 22 line 18 thru col. 23 line 29).

As to claims 5 and 16, Garnet discloses the invention as claimed in the above. Garnet further discloses wherein the control logic is operable to buffer references to the dirtied blocks of the main memory to be copied (col. 22 line 18 thru col. 23 line 29).

As to claims 6 and 17, Garnet discloses the invention as claimed in the above. Garnet further discloses wherein the references to the dirtied blocks comprises addresses for the dirtied blocks (col. 22 line 18 thru col. 23 line 29, bit map reads on this limitation).

As to claims 7 and 18, Garnet discloses the invention as claimed in the above. Garnet further discloses wherein a block of main memory is a page of main memory (col. 22 line 18 thru col. 23 line 29).

As to claims 8 and 19, Garnet discloses the invention as claimed in the above. Garnet further discloses wherein each dirty indicator comprises a single bit (col. 22 line 18 thru col. 23 line 29, bit map).

As to claims 9 and 20, Garnet discloses the invention as claimed in the above. Garnet further discloses wherein the direct memory access controller is operable to instigate a search of the dirty memory for dirty indicators indicative of dirtied blocks (col. 22 line 18 thru col. 23 line

29).

As to claim 10, Garnet discloses the invention as claimed in the above. Garnet further discloses wherein each processing set includes a dirty memory (col. 22 line 18 thru col. 23 line 29).

As to claims 11 and 21, Garnet discloses the invention as claimed in the above. Garnet further discloses wherein the processing sets are operable in lockstep, the computer system comprising logic operable to attempt to reinstate an equivalent memory state in the main memory of each of the processor following a lockstep error (Fig. 12 S2).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached PTO-892.

12. a shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) days from the mail date of this letter. Failure to respond within the period for response will result in **ABANDONMENT** of the application (see 35 USC 133, MPEP 710.02, 710.02(b)).

13. When responding to the office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections. See 37 C.F.R. § 1.111(c).

14. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

15. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Hong Kim whose telephone number is (703) 305-3835. The Examiner can normally be reached on the weekdays from 8:30 AM to 5:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Matt Kim, can be reached on (703) 305-3821.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

16. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to TC-2100:

Official (703) 872-9306, New as of 8/4/2003

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Paper No. 6

After-Final (703) 746-7238
Official (703) 746-7239 (for formal communications intended for
entry)

Non-Official/Draft (703) 746-7240 (for informal or draft communications, please
label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal
Drive, Arlington. VA., Sixth Floor (Receptionist).

HK
Primary Patent Examiner
December 11, 2003

